

## Expression of Interest

### India – Sweden Collaborative Industrial Research & Development Programme 2025

#### Company Information

1. Company Name: Onelement Energy Private Limited
2. Company Description: Onelement Energy is a Indian cleantech company dedicated to revolutionizing the cement industry's decarbonization landscape. We address India's 177 million tons of annual CO2 emissions (5.8% of national emissions) by targeting a \$2 billion Carbon Capture, Utilization, and Storage (CCUS) market by 2030. Our innovative Direct Separation technology captures 40% of emissions at 30% below traditional costs, converting CO2 into green methanol using a Fluidized Bed Reactor powered by affordable solar-generated green hydrogen. Aiming for 1.5 million tons of carbon capture per year, we are establishing a test bench in Telangana, progressing toward Technology Readiness Level (TRL) 9 by 2027, leveraging India's abundant solar resources and the National Hydrogen Mission's momentum.
3. Country (India/Sweden): India
4. Sector and subsector:
5. Year Established: 2021
6. Company Website: Onelement.in

#### Contact Information

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**Proposed Area of Project/ Proposal:** Capture of CO<sub>2</sub> by direct separation from Lime stone and conversion of CO<sub>2</sub> to Green Methanol

**Summary of the Proposed Project/Proposal:** Onelement Energy proposes a collaborative R&D project focused on advancing Carbon Capture, Utilization, and Storage (CCUS) technology for decarbonizing the cement industry, targeting a capture capacity of 1.5 million tons of CO<sub>2</sub> per year. The project will center on optimizing our Direct Separation technology, which captures 40% of cement emissions at 30% below traditional costs, converting CO<sub>2</sub> into green methanol using solar-powered green hydrogen.

This initiative will leverage India's abundant solar resources and the National Hydrogen Mission's momentum, integrating Swedish expertise in high-temperature process engineering and carbon utilization. The project aims to enhance the Telangana test bench, currently progressing toward TRL 9 by 2027, through joint development of efficient heat recovery systems and scalable reactor designs. This collaboration will address technical challenges like energy efficiency and material durability, aligning with India's net-zero goals and Sweden's leadership in industrial decarbonization. The outcome will be a commercially viable CCUS solution, expandable to global markets, fostering sustainable innovation and economic growth.

**Main characteristics and specific technological expertise of potential partner you are looking for:**

As Onelement Energy seeks a partner for the India-Sweden Collaborative Industrial Research & Development Programme, we are looking for collaborators with specific technological expertise and main characteristics that align with our CCUS solution for cement decarbonization, targeting 1.5 million tons of CO<sub>2</sub> capture per year. Based on industry insights, we aim to partner with companies specializing in catalysts for methanol synthesis and Power-to-X (PtX) projects, particularly those with proven expertise in green methanol production and scalable reactor technologies.

Identified potential collaborators: Liquid Wind, Perstorp, Orsted, Clariant. We are inclined for startups like ourselves as well, however we seek guidance in identifying them.

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